

Borehole

22-03-10

Log Event A

Borehole Information

Farm : <u>BY</u>	Tank : <u>BY-103</u>	Site Number : <u>299-E33-243</u>
N-Coord : <u>46,130</u>	W-Coord : <u>53,289</u>	TOC Elevation : <u>647.65</u>
Water Level, ft :	Date Drilled : <u>12/7/1973</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

Borehole Notes:

The borehole was drilled with a cable tool drilling rig, and the casing is apparently ungrouted and unperforated.

The borehole is apparently not 100 ft deep; the logging tool's maximum depth was 86 ft. The Tank Farms gross gamma log has a comparable maximum depth.

Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>7/26/1995</u>	Logging Engineer: <u>Widdop/Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>16.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>7/27/1995</u>	Logging Engineer: <u>Mike Widdop</u>
Start Depth, ft.: <u>16.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>86.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

22-03-10

Log Event A

Analysis Information

Analyst : D.C. Stromswold

Data Processing Reference : P-GJPO-1787

Analysis Date : 1/19/1996

Analysis Notes :

Verification spectra collected before and after log run 1 and before run 2 showed that the logging tool was operating properly. No verification spectrum was collected after run 2 because of mechanical problems with the truck engine and power take off. These problems did not affect the data that were collected.

Gain drift was minimal during data acquisition, enabling a single energy calibration to be used during data processing for each run.

Repeatability at the single overlap logging depth was within the statistical uncertainties.

Correction factors for 0.33-in.-thick steel casing were used during data processing, because correction factors for 0.31-in. casing were not available. As a result, the calculated concentrations will be slightly high. No water correction was applied because the borehole was dry.

Cs-137 was the only man-made contaminant detected, occurring continuously from the surface to about 50 ft, which is the interval of the backfill around the tank. Cs-137 concentrations were less than 50 pCi/g. Below 50 ft, Cs-137 was detected only discontinuously.

The K-40 log shows increased concentrations below about 47 ft, as with other boreholes around tank BY-103, but the concentration also decreases for a short interval near 56 ft.

See the Tank Summary Data Report for BY-103 for additional log analysis.

Log Plot Notes:

Separate log plots show the man-made (e.g., Cs-137) and the naturally occurring radionuclides (K-40, U-238, and Th-232). The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

A combination plot includes both the man-made and natural radionuclides, in addition to the total gamma derived from the spectral data and the Westinghouse Hanford Company (WHC) Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data from WHC with no attempt to adjust the depths to coincide with the SGLS data.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection level (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.